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Impact of Women and Foreign Medical Graduates On Specialty Distribution of U.S. House Officers

Stephen S. Mick, Ph.D., and Jacqueline Lowe Worobey

Abstract—The increase in the number of women and the decline in the number of foreign medical graduates (both foreign- and U.S.-born graduates of medical schools outside the United States) in U.S. medicine are studied by comparing the specialty distributions of U.S. house officers in the 1973–74 and 1979–80 training years. The joint effect of the distribution of sex and foreign versus U.S. medical graduate status on specialty selection is also examined. The results showed that although male and female house officers who were graduates of U.S. medical schools increased in number over the seven-year period, the rate of increase for females was over 12 times as great as the rate for men. By contrast, although male and female house officers who were graduates of foreign medical schools decreased over the same period, the rate of decrease for males was over nine times as great as the rate for women. U.S.-educated men and foreign-educated men had similar distributions across the specialties, whereas U.S.-educated women and foreign-educated women differed not only from each other but also from both groups of men. The specialty selection of foreign-educated females in the 1979–80 training year was especially different from the other three groups. Implications of these data are discussed in the context of the argument that there is a physician surplus.

During the 1970s, the gains of women and the decline in the numbers of foreign medical graduates (FMGs) were thought to be important in changing the composition of the physician manpower pool of the United States. Attention was directed either to the increasing presence of women (1–3) or to the initially enormous and then decreasing contribution by FMGs to U.S. medicine, especially at the graduate medical education level (4–6). The striking thing about these two topics is that they have not been discussed simultaneously. Aside from an analysis by Goldblatt and Goldblatt (7) in which FMGs as a group were compared with U.S. medical graduate (USMG) men and women, the authors know of no studies which have examined the joint effect, if any, of sex and FMG-USMG status on medical practice. That is, no one has isolated FMG women and compared them with other subgroups of medical graduates.

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The purpose of the authors in this paper was twofold. First was to compare the distributions of U.S. house officers in the 1973–74 and 1979–80 training years by sex and FMG-USMG status to show the growth and change in the house officer pool. FMGs refer to graduates of foreign medical schools whether they were foreign or U.S. citizens, and USMGs refer to graduates of U.S. medical schools regardless of their citizenship. Although it would have been desirable to have assessed the foreign national FMGs separately from the U.S. citizen FMGs, there were no data known to the authors to permit such an analysis. The 1973–74 training year was chosen because it represented the zenith of FMG inflow into the United States. The 1979–80 training year was selected because it was the most recent year for which published data were available permitting the disaggregation of house officer statistics by sex and FMG-USMG status. The authors' second purpose was to examine the joint effect of these two variables on patterns of specialization.

The decline of FMGs in the United States was brought on in part by the enactment of the Health Professions Educational Assistance Act of 1976 (P.L. 94-484), which made it more difficult for foreigners to stay in the United States by switching from the popular exchange visitor visa to the permanent resident visa. Passing the Visa Qualifying Examination as a prerequisite for obtaining the exchange visitor visa also added to the decline. And, the increasing enrollment and graduation of men and women at U.S. medical schools produced a competitive pressure against the immigration of FMGs (4, 6, 8). FMGs declined over the seven-year period 1973–74 to 1979–80 from 17,220 to 12,065 house officers, an absolute decrease of 5,155 and a relative decrease of 29.9 percent. USMG house officers, by contrast, grew by 11,422, a relative increase of 27.8 percent. Overall, the entire house officer pool grew by 10.7 percent, an increase of 6,267.

This large absolute and relative increase in house officers in a comparatively short time has been the subject of both praise and concern. Those supporting opportunities for medical education regardless of sex praised the fact that of the 6,267 increase in the number of house officers, 5,766 (92.0 percent) were women (2). This is a rather extraordinary number. The absolute numbers of men during the two periods remained relatively constant, registering a mere 1.0 percent increase, while the number of women increased by 86.5 percent. Clearly, the gain in women in the profession of medicine during the 1970s was a phenomenon and reflected efforts by U.S. medical schools to open the field to qualified persons regardless of sex.

On the other hand, concern was expressed by the federal government and some medical educators that a physician surplus was upon us and would remain until the 21st century (9). Thus, the growth of 10.7 percent in the house officer pool in just a seven-year period troubled those foreseeing a physician surplus. However, countertrends are already evident: decreases in medical school admissions leading ultimately to decreases in the number of graduates of U.S. medical schools and the leveling off of house officer positions (10). In regard to the latter, in the two training years beginning in 1982–83, there were finally more applicants for house officer positions than there were slots available (11).

It is obvious that, at least in the 1970s, USMGs, not FMGs, accounted for the increase in the overall number of house officers. While USMGs grew by 27.8 per-

cent, FMGs declined by 29.9 percent. However, these figures obscure less visible trends that make it important to look at the joint distribution of sex and FMG-USMG status and its change over time. USMG men contributed much less to the overall growth of the house officer pool than did USMG women. While the number of USMG men increased by 14.6 percent, the number of USMG women grew by a phenomenal 178.2 percent. And while FMGs as a class declined over the seven-year period, it was almost exclusively concentrated among the FMG men and not the FMG women, the former group declining by 36.3 percent and the latter by only 3.8 percent. It has not been well known or acknowledged in the literature that FMG women, while a small component of the total house officer pool, have nevertheless been a constant component of the pool (5.8 percent in 1973–74 and 5.0 percent in 1979–80). Yet, this small subgroup of house officers may have an impact disproportionate to its size in rendering medical services in the nation.

Specialty Training

As shown in tables 1 and 2, the authors have disaggregated USMGs and FMGs by sex and specialty areas, based on information published by the American Medical Association (12, 13). For comparative purposes, the specialties have been grouped according to primary care, hospital-based, secondary and tertiary specialties of internal medicine, secondary and tertiary specialties of surgery, and psychiatry and physiatry (including physical medicine and rehabilitation). Primary care included family practice, general practice, internal medicine, obstetrics/gynecology, and pediatrics. Hospital-based specialties included anesthesiology, diagnostic and therapeutic radiology, forensic pathology, and pathology. The psychiatric/physiatry grouping was made not because of any substantive kinship but because the specialties had unusually large proportions of FMGs and would have been obscured if they had been included among the medical specialties. Data on only those house officers who were residents (that is, who were not interns) are presented in Table 1, because information on the specialties to be chosen by the interns was not available. Thus, the analysis excluded all 9,569 interns in the 1973–74 training year. Data on house officers in the 1979–80 (Table 2) training year included all individuals in training because the term "intern" had generally been dropped and because specialties were determined in the first year of graduate medical education. This difference in the two data sources does not create artifactual results because the authors do not look at absolute or relative change over time. Rather, within each of the four subgroups, the number and percent in each specialty grouping are calculated. The relative frequencies of the specialties across each of the subgroups are then compared to determine the distribution of USMG men, USMG women, FMG men, and FMG women. These steps are taken for each of the two training years.

In the 1973–74 training year, female USMGs were noticeably more likely than any of the other three groups to be found in primary care specialties, a finding supported by many other reports (1, 7, 14). In these same specialties, female FMGs were actually underrepresented compared with the proportion of all medical graduates in this specialty area. In the hospital-based specialties, it was the FMG women who had an overwhelmingly large presence relative to their numbers: 36.8 percent versus an average of all groups of 17.3 percent. USMG women were only

TABLE 1

Distribution of House Officers and Specialty Areas by Status as U.S. Medical Graduates (USMG) or Foreign Medical Graduates (FMG) and by Sex, 1973–74 Training Year*

Specialty Area	USMG				FMG				Total	
	Male		Female		Male		Female			
	No.	Percent†	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Primary care	11,929	38.0	1,223	48.3	4,799	39.1	915	35.1	18,866	38.7
Hospital-based	4,551	14.5	423	16.7	2,512	20.5	961	36.8	8,447	17.3
Medical specialties	1,396	4.5	118	4.7	335	2.7	80	3.1	1,929	4.0
Surgical specialties	10,434	33.3	239	9.4	3,491	28.5	102	3.9	14,266	29.2
Psychiatry, physiatry	3,060	9.8	529	20.9	1,130	9.2	552	21.1	5,271	10.8
Total	31,370	100.1	2,532	100.0	12,267	100.0	2,610	100.0	48,779	100.0

* Data exclude all house officers classified as interns.
† Percentages do not equal 100 percent due to rounding.

TABLE 2

Distribution of House Officers and Specialty Areas by Status as U.S. Medical Graduates (USMG) or Foreign Medical Graduates (FMG) and by Sex, 1979–80 Training Year

Specialty Area	USMG				FMG				Total	
	Male		Female		Male		Female			
	No.	Percent	No.	Percent	No.	Percent*	No.	Percent*	No.	Percent*
Primary care	21,758	50.2	5,890	64.0	3,831	43.3	1,552	48.1	33,031	51.1
Hospital-based	5,335	12.3	1,071	11.6	1,376	15.6	771	23.9	8,553	13.2
Medical specialties	2,069	4.8	366	4.0	322	3.6	102	3.2	2,859	4.4
Surgical specialties	11,673	26.9	945	10.3	2,527	28.6	115	3.6	15,260	23.6
Psychiatry, physiatry	2,511	5.8	932	10.1	782	8.8	687	21.3	4,912	7.6
Total	43,346	100.0	9,204	100.0	8,838	99.9	3,227	100.1	64,615	99.9

* Percentages do not equal 100 percent due to rounding.

slightly more likely to be found in these specialties than were USMG men. Moreover, FMG men were more like both of their USMG counterparts than they were like the FMG women.

Although there was little variation among the four groups in the medical subspecialties, great differentiation was present for the surgical area. One-third of USMG men were in surgery and its subspecialties. The proportion of FMG men was almost as high, 28.5 percent. Only 9.4 percent of USMG women were training in these specialties in 1973–74, and an even smaller percentage of FMG women (3.9 percent) was found in them. Surgery was a male-dominated domain regardless of U.S. or foreign medical education.

Finally, the opposite situation prevailed for psychiatric specialties and physiatry. Both female USMGs and FMGs were about equally represented in this category, and both male USMGs and FMGs were less than one-half as likely as the women to be located in this area. Psychiatry and physiatry were the choices of one out of five women and less than one out of 10 men, regardless of location of medical education.

The picture six years later was similar in some aspects and different in others. While the total proportion of house officers in primary care specialties rose from 38.7 percent to 51.1 percent, the disproportionate presence of USMG women, based on their total number, in the primary care specialties was stronger than ever. The presence of FMG women in hospital-based specialties was once again out of proportion to their number, and the proportions of FMG men, USMG men, and USMG women in these specialties were much alike. Roughly similar distributions of all four groups in the medical subspecialties prevailed as it had six years earlier. Men, both FMGs and USMGs, were much more likely to be in surgical training; more FMG men proportionately were in surgical training than USMG men. The USMG female group made no more than a small percentage gain in surgery, and FMG females actually lost ground. Finally, in psychiatry and physiatry the FMG women were still overrepresented compared with the proportion of all medical graduates in these specialties, while the number of USMG women declined by over 10 percentage points from the 1973–74 level.

From the early to the late 1970s, despite shifting marginal distributions of all house officers toward primary care and away from hospital-based, surgical, and psychiatric specialties, major patterns of differentiation according to subgroup were maintained and, indeed, heightened. USMG males predominated in surgical specialties. The proportion of USMG females in primary care specialties increased, while the proportion in psychiatry and physiatry declined. The proportionate distribution of FMG males in each specialty area was about equal to that of USMG males. FMG women were found in disproportionate numbers in hospital-based specialties and psychiatry and physiatry. They were noticeably underrepresented at both time periods in surgical positions.

Comment

The image of the FMG moving into specialties eschewed by USMGs may need revision. Based on the results of the study reported here, it appears that the FMG female house officers are the most likely of the four groups to be found in the so-called "traditional" FMG residencies, for example, pathology, therapeutic radiology, psychiatry, and physiatry (15). The distribution of FMG males is much more

like that of USMG males, or even USMG females, than FMG females. Moreover, between the two female groups, except for a shared underrepresentation in surgical specialties in which USMG women in 1979–80 were nevertheless still about 2.9 times more likely to be found than FMG women, little similarity emerged.

This internal differentiation among house officers by sex and FMG-USMG status must be placed in the context of the overall decline in the numbers of FMGs in the United States. During the period of the present study, FMG men experienced a decline of 36.3 percent, a loss of some 5,026 individuals, while FMG women had a much smaller decline, 3.8 percent, a loss of 127 individuals. Whatever the forces that produced the decline in male FMG house officers, they have not affected the number of FMG women as much. Because of the differences in specialty distribution, it can be hypothesized that FMG women have not encountered the same competition for residency positions experienced by the FMG men. This places the FMG female house officer in a critical role. Goldblatt and Goldblatt (7) projected that, as the numbers of FMGs declined, USMG women would find themselves either selecting or encouraged to select "less prestigious" specialties. The data in the present study support the Goldblatts' contention that USMG women would enter primary care specialties, some of which rank low in various specialty prestige scales (16, 17). Additionally, using a procedure performed elsewhere on FMGs as a group (5), the present authors determined that the proportions of female USMG house officers in the 20 largest specialties are negatively associated with the physician supply/requirement ratios projected by the Graduate Medical Education National Advisory Committee (GMENAC) for 1990 for each of these specialties ($r = -.418$, $p < .10$) (9). That is, in specialties that will tend toward "shortage" or "near-balance" ratios in 1990, disproportionate numbers of female USMG house officers were found in 1979–80.

Still, it is the female FMG who has experienced even more service in the specialties avoided by the other groups, including USMG women. The correlation between the proportion of FMG women in the 20 largest specialties and the GMENAC supply/requirement ratio is stronger: $r = -.609$ ($p < .01$). The analogous correlation for FMG men is nonexistent, $r = -.094$ ($p > .50$).

In sum, although there are specialty differences between FMGs and USMGs, they are not as strong as those revealed when sex and the FMG-USMG distinction are examined concurrently. These analyses will need to be performed on more recent data to determine whether the differences persist. However, as the authors have already determined, the correlation in the 1982–83 training year for the 20 largest specialties between FMG proportions and the GMENAC 1990 supply/requirement ratios is $-.490$ ($p < .05$) (5), and it seems likely that the sex differences are still present. During the 1970s, women FMGs played a unique role among the specialties. Specific attention should be drawn to this fact as health analysts and medical educators debate the implications of policies and formulate new policies affecting the growth of the physician complement in the nation.

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COMMUNICATIONS

Assessment of Clinical Skills in U.S. Medical Schools

Lawrence J. Fabrey, Ph.D., Susan M. Case, Ph.D., and Barbara J. Andrew, Ph.D.

Medical students typically are not examined systematically on their ability to perform all the clinical procedures which may be expected of them upon entry to a residency program. There is little doubt that the primary evaluation tools in medical school are cognitive examinations and rating scales, neither of which evaluates the performance of specific clinical skills in detail. The instrument that is most likely to provide a valid and reliable indication of competence to perform a specific procedure is a checklist. Checklists provide a detailed list of the components of a procedure and are used while observing the performance of the procedure. Typically, the observer records whether or not each component was performed in the manner prescribed, but some checklists also call for a judgment about the quality of the performance of a component.

Andrew (1) described the development of behavioral checklists that could be used to assess a physician's assistant's ability to perform components of a physical examination. McSwain and colleagues (2) evaluated whether a simple criterion performance checklist could help students improve their self-teaching of the principles of basic cardiac life support. Liu and colleagues (3) described research using two checklists developed by the Interhospital Study Group. Other studies, such as those of Morgan (4) and Wigton (5), have emphasized the need for training in clinical skills but have not directly discussed their measurement.

The study reported here was partially supported by grant 80-24 from the Commonwealth Fund.

Dr. Fabrey is director of measurement services, American Nurses' Association, Inc., Kansas City, Missouri. Dr. Case is senior evaluation officer and Dr. Andrew is vice president for institutional development and research, National Board of Medical Examiners, Philadelphia, Pennsylvania, where Dr. Fabrey was formerly an evaluation officer.

Method

The purpose of the study reported here was to identify clinical procedures for which department chairmen felt observational checklists would be useful. A secondary purpose was to investigate aspects of the current use of direct observation techniques for the assessment of clinical skills.

In 1981 the authors mailed a one-page questionnaire to 815 randomly selected chairmen of clinical departments in U.S. medical schools. All respondents were asked to complete all three sections of the questionnaire. The first of the three sections asked whether or not their department uses checklists with direct observation of medical students. The second section included a list of 40 clinical procedures identified through a review of curriculum guides and interviews with residents and clinical faculty members. For each procedure, the respondents were asked to indicate whether or not their department already had a standard form, such as a checklist, or could use such a form if it were available. The third section asked about the purposes for which checklists might be used in their department. The survey was designed in a checklist format, although space for comments was included on the form.

Approximately 10 weeks after the mailing, 319 of the chairmen returned the survey. That number represented a response rate of 39 percent. Responses were received from a total of 102 different medical schools, and the distribution of specialties responding appeared to be representative of the entire sample.

Results

Responding to the first of the three sections of the survey, 20 percent reported that checklists

TABLE 1

Percentage of Clinical Department Chairmen at 102 U.S. Medical Schools Reporting That Checklists Would Be Useful To Evaluate Clinical Skills of Students, 1981

Procedure	Internal Medicine ($n = 62$)	Surgery ($n = 59$)	Pediatrics ($n = 33$)	Obstetrics/ Gynecology ($n = 23$)	Total Group ($n = 319$)
Lumbar puncture	51.6*	16.9	51.5	4.3	32.3
Insert IV	38.7	28.8	27.3	17.4	27.3
Urinary bladder catheter	37.1	32.2	24.2	26.1	27.0
Nasogastric intubation	41.9	35.6	27.3	4.3	26.3
Cardiopulmonary resuscitation	50.0	25.4	30.3	8.7	26.0
Arterial puncture	37.1	25.4	33.3	4.3	26.0
Central venous pressure catheter	33.9	35.6	9.1	21.7	25.7
Endotracheal intubation	41.9	35.6	9.1	4.3	24.5
Gram stain	50.0	11.9	33.3	17.4	24.5
Venipuncture	35.5	25.4	30.3	17.4	23.5
Dressing wound	24.2	52.5	3.0	13.0	21.9
Pleural cavity aspiration	50.0	32.2	18.2	8.7	21.9
Intravenous injection	35.5	16.9	30.3	4.3	21.3
Urinalysis	37.1	15.3	24.2	8.7	21.0
Cleanse, debride, suture	25.8	42.4	6.1	4.3	21.0

* Interpretation of this cell entry is as follows: Of the 62 respondents representing internal medicine, 51.6 percent indicated that they could use a form such as a checklist to evaluate student performance of a lumbar puncture.

were currently used in their departments. The survey showed that observations of medical students were usually made by attending physicians (90 percent), residents (60 percent), and to a lesser extent by nonphysician personnel (27 percent).

Table 1 summarizes the second section of the survey, showing 15 procedures for which at least 20 percent of the 319 faculty respondents reported that checklists would be useful in four disciplines. There was some difference among the four specialties in the ranking of procedures for which checklists were considered to be most useful. At least half of the internal medicine respondents selected lumbar puncture, cardiopulmonary resuscitation, Gram stain, and pleural cavity aspiration. On the other hand, the most useful procedures to surgery respondents were changing the dressing on a wound (53 percent) and cleansing, debriding, and suturing a simple laceration (42 percent). Pediatrics department chairmen most frequently selected lumbar puncture (52 percent), while obstetrics and gynecology respondents most frequently chose urinary bladder catheterization (26 percent).

In response to the third section of the survey, 53 percent of the chairmen indicated that they would use checklists to teach the steps of a procedure, and 55 percent indicated that checklists would be used to provide feedback to students regarding their performance. Forty-three percent of the respondents would use them to evaluate formally student performance of a procedure, but only 24 percent would recommend that performance, as measured by such checklists, be a requirement for successful completion of a clerkship. Only 15 percent of the chairmen reported that they would not use checklists, about half of these

because of a lack of relevance of the 40 clinical procedures to their particular specialty.

Discussion

Clear interest in the use of observational checklists was expressed by the respondents, although few had checklists available for use. More than half of the respondents indicated that they would use such checklists for teaching the steps of a procedure or for providing feedback to students regarding performance. Checklists for any of the 40 procedures listed on the survey would probably be less appropriate for certain departments (for example, psychiatry, ophthalmology, or dermatology) than for others (for example, internal medicine, surgery, or family practice).

It was not surprising that there was not agreement across departments regarding procedures for which it would be most useful to have a checklist. Within a specialty, however, certain procedures were selected by 50 percent or more of the respondents. This indicated a considerable interest in checklists for procedures unique to a particular specialty. In addition, for some of the more frequently selected procedures, at least some of the respondents in all specialties would be interested in using a checklist.

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Formal Resuscitation Training in Medical School

K. A. Handal, M.D., and Jerome Greenberg

In 1973 the report (1) on the Conference on Education of the Physician in Emergency Medical Care, sponsored by the Council on Medical Education of the American Medical Association, stated that "competence in emergency medical care should be considered on par with competency in any other area of medicine as a requirement for graduation" and that "certain knowledge and manipulative skills are requisites for the delivery of emergency medical care, and must be included in the curriculum of all medical students."

It has been almost 25 years since Kouvenhoven and colleagues (2) introduced external chest compression and almost 10 years since the National Academy of Sciences-National Research Council (NAS-NRC) conference on cardiopulmonary resuscitation (CPR) recommended the training of medical personnel in external cardiac compression techniques according to standards of the American Heart Association (AHA) (3).

A standardized body of information that reflected the state of the art in basic life support (BLS) and advanced cardiac life support (ACLS) was developed in 1975 into conceptual materials by the AHA and updated in 1981 (4). Development by the AHA of stand-

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A Delphi Study To Identify Future Roles for Physician's Assistants

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Those responsible for reviewing and accrediting physician's assistant (PA) programs believe that the goal of PA training is to place graduates into primary care service areas (1). In fact, virtually all the early graduates of PA programs entered primary care practices (2, 3).

Despite reports of a stable level of PAs practicing in primary care, in recent years different roles for PAs have developed (4). Thus, a need for identifying future professional roles for PAs was seen by the authors, and a four-round Delphi study of PA program faculties was carried out in 1982. The Delphi technique has been used in medicine and the health sciences as a means of achieving a consensus among respondents (5–8). The approach ensures anonymity of the respondents in order to provide an unbiased framework for the purpose of identifying possible roles, supplies feedback to the respondents so that they have data upon which to base subsequent decisions, and permits statistical analysis to be conducted so that the results can be useful in planning.

The Delphi study reported here was well received by the respondents and demonstrated active participation on their part. The continued cooperation of the participants in each round supports the use of the method as a valid procedure for arriving at specific conclusions.

Questionnaires were initially mailed to 50 PA programs. After responses to the fourth and last round of mailings, usable surveys totaled 39.

Problems encountered in the study included the identification of a higher-than-expected number of roles and the mixed selection of categories used in the subsequent rounds, which combined practice type and practice settings.

The analysis of responses revealed a prevailing attitude among PA educators that most PAs would continue to work in primary care practices but that diversification in practice location would occur (Table 1). A trend to-

TABLE 1

Ranking of Likelihood of Future Roles for Physician's Assistants (PA) Identified Through a Delphi Study of 39 PA Programs, 1982

Role	Mean*
Primary care PA	6.67
Surgical PA/surgeon's assistant	4.48
Health maintenance organization	4.33
House staff PA	3.81
Emergency medicine PA	3.80
Industrial/occupational health PA	3.24
Armed forces PA	2.91
Hospital PA	2.87
Physical assessment/health screening PA	2.56
Private practice PA	2.56
Specialty care PA	2.52
Rural/inner city PA	2.50
Geriatrics PA	2.48
Cardiovascular-thoracic PA/surgeon's assistant	1.98
Extended care/nursing home PA	1.93
Prison PA	1.63
Patient educator	1.17
Mental health institution PA	1.13
PA program instructor	1.09
Preventive medicine PA	.97
Health educator	.56
Office-clinic manager	.37
School health PA	.19

* Means calculated from rank-order assignment for each role. Scale ranged from 1 to 10, with 10 being "most likely."

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ward employment in various institutional settings with a variety of patients is expected, including Veterans Administration hospitals, private hospitals, nursing homes, health maintenance organizations (HMOs), mental health facilities, and correctional institutions. This trend has also been reported by Cawley and colleagues (9). The impact of the diagnosis-related group reimbursement system on this trend has not yet been felt fully; however, an increase in awareness of costs by institutions may be focusing more attention on the cost efficiency of employment of PAs. A decrease in the number of residency positions, coupled with a decrease in the funding of staff positions, may be resulting in the hiring of more PAs as substitutes for persons who would have been in those positions. Differences in the perception of malpractice risk by health care administrators further affect the employment of PAs by institutions.

The increase in institutional utilization of PAs raises several questions. First, have PAs been included formally in the long-range plans of the major proprietary health services providers, HMOs, and others? Second, has enough research been done to describe and demonstrate the efficiency and utilization patterns of PAs? Third, what role do institutional employers play in the efforts of the PA profession to establish reimbursement procedures within Medicare and Medicaid? Reimbursement for PA-provided services is one of the last obstacles the profession must surmount in order to receive maximum benefits for the care they provide to patients.

The results of the survey described here leave little doubt that clinical roles in primary care should continue to be the focus of PA program curricula. Nonclinical roles for PAs will continue to develop in the future but will not play a significant part in PA education. In other words, physician's assistants who are taught the fundamentals of data collection, including history-taking and physical assessment, along with problem-solving skills, will be able to function effectively in numerous situations. Some programs may require clinical curriculum revisions that address the changes associated with practice location. Specialized clinical roles that reflect new trends in health care, such as increased interest in geriatrics, may also require additional attention in the curriculum. Highly technical roles for PAs in specialty practices will continue to necessitate on-the-job training or postgraduate programs.

The reporting by the survey respondents of a large and diverse group of career alternatives supports the notion that a degree leading into the PA profession provides qualifications that, along with other educational credentials and various work and life experiences, makes graduates of PA programs eligible for a wide range of occupational roles in clinical and nonclinical positions.

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DATAGRAM

Financial Assistance for Medical Students, 1983–84

Each year the Association of American Medical Colleges (AAMC) collects data through the Liaison Committee on Medical Education (LCME) annual questionnaire from its member medical schools on financial assistance awarded to medical students. The following summary is the second in an annual series to be published in this journal.

Table 1 shows the financial assistance awarded to medical students from all sources

TABLE 1

Sources of Medical Student Financial Assistance

Sources	1982–83			1983–84		
	Total Amount (In millions)	Number	Average Amount	Total Amount (In millions)	Number	Average Amount
Scholarships						
Administered by schools						
Exceptional financial need	$ 2.4	172	$14,238	$2.5	173	$14,334
Medical Scientist Training Program	7.9	662	11,950	7.2	525	13,719
School funds	30.8	13,297	2,313	30.0	12,741	2,426
Other scholarships	9.1	6,283	1,460	10.7	6,463	1,654
Subtotal	50.2			50.4		
Not administered by schools						
Armed Forces health professions	48.8	3,171	15,402	51.2	3,289	15,575
National Health Service Corps	23.5	1,556	15,086	9.1	661	13,691
National medical fellowships	0.7	730	935	1.2	811	1,528
Other (with service commitment)	9.7	1,824	5,329	9.5	1,823	5,206
Subtotal	82.7			71.0		
Total scholarships	132.9			121.4		
Loans						
Administered by schools						
Health professions student loans	22.9	9,551	2,403	22.0	8,925	2,459
Guaranteed student loans	4.7	984	4,786	7.2	1,471	4,840
National direct student loans	14.9	8,057	1,851	18.2	8,729	2,087
Loans from school funds	16.8	7,495	2,244	22.7	8,939	2,540
Subtotal	59.3			70.1		
Not administered by schools						
Guaranteed student loans	178.5	37,624	4,745	188.6	39,052	4,829
Health education assistance loans	50.4	6,554	7,695	78.8	9,830	8,013
Parental loans for undergraduate students	11.3	3,930	2,864	18.0	6,245	2,884
Other loans	6.0	2,476	2,418	6.2	2,614	2,370
Subtotal	246.2			291.6		
Total loans	305.5			361.7		
College Work Study Program	1.4	1,092	1,284	2.7	1,768	1,521
Grand total	439.8			485.8		

known to the 120 schools reporting in academic year 1983–84 and the 118 schools reporting in 1982–83. A decrease of $25.4 million, a 5.5 percent drop, in total student assistance awarded in 1982–83 from the previous year was more than compensated by a $46.0 million, or 10.5 percent, increase in 1983–84 (Table 2). Thus, the total amount of student assistance awarded in 1983–84 was greater than the total for either 1981–82 or 1982–83.

A trend away from scholarships and toward loans was reestablished in 1983–84. Total scholarships declined $11.5 million, or 8.7 percent, while total loans climbed $56.2 million, or 18.4 percent. Simultaneously the first-year cost of attending medical school rose 11.1 percent at public schools and 7.1 percent at private schools. This compares with an increment of 10.4 percent at public schools and 14.4 percent at private schools in the previous year.

The major increase in student financial assistance was in loans not administered by schools, which emanate principally from banks or states stimulated by a federal guarantee. The largest increase occurred in the Health Education Assistance Loan (HEAL) Program, in which the increase was $28.4 million, or 56.3 percent, compared with an increase of $17.2 million, or 51.8 percent, in 1982–83 over the previous year. The second largest increase in 1983–84 was $10.1 million in the Guaranteed Student Loan (GSL) Program. The third overall largest increase of $5.9 million was in loans from school funds, a 35.1 percent rise over the previous year, which had had an increment of $7.2 million, or 74.8 percent, over 1981–82.

TABLE 2

Changes in Financial Aid to Medical Students, 1974–75—1983–84 (Dollars in millions)

Academic Year	Total Assistance	Increase/Decrease from Previous Year	
		Amount	Percent
1983–84	$485.8	$+46.0	+10.5
1982–83	439.8	−25.4	− 5.5
1981–82	465.4	+63.5	+15.8
1980–81	401.9	+63.9	+18.9
1979–80	338.0	+73.9	+28.0
1978–79	264.1	+57.7	+28.0
1977–78	206.4	+41.1	+24.9
1976–77	165.3	+16.5	+11.1
1975–76	148.8	+29.4	+24.7
1974–75	119.3	+29.9	+33.5

Declines in student assistance were led by the $14.4 million drop in the National Health Service Corps (NHSC) Scholarship Program, which was phased down to assist only approximately 140 new students in 1983–84. There was also a small decline of about $200,000 in the category of "other" scholarships with a service commitment. Although these declines may signal a move away from service committed aid not only by the federal government but also by the states and other agencies, there was a modest $2.4 million increase in the Armed Forces Health Professions Scholarship Program.

Table 3 itemizes the medical student financial assistance awarded from federal programs in 1983–84 and 1982–83. The 10.6 percent growth in federal dollars disbursed was virtually identical to the 10.5 percent overall growth rate in student aid between 1982–83 and 1983–84. Therefore, it was the federal programs which accounted for the increase in aid funds, while the amount of total awards from private and state sources remained almost unchanged. The federal programs also were largely responsible for the previously mentioned downward trend in scholarship awards and upward swing in loan awards. The large increment in Health Education Assistance Loan Program is important because the program's relatively high interest rate and an insurance premium charged to borrowers make it the most costly to repay. It, therefore, is a major contributor to the growth in student indebtedness.

Like the federal programs, the schools provided an overall, although relatively modest, increase in funding between 1981–82 and 1982–83. School funds for scholarships, also like the federal programs, declined by about $800,000, but a $5.9 million increase in school loan funds produced an overall gain of $5.1 million, or 10.7 percent rise, in total school funds. In addition, guaranteed student loans made by schools were $2.5 million, or 53.2 percent, higher in 1983–84. Both of these increments indicate the continuing commitment

TABLE 3

Medical Student Financial Assistance from Federal Programs

(Dollars in millions)

	1982–83 Amount	1983–84 Amount	Amount Change	Percent Change
Scholarships				
Exceptional financial need	$ 2.4	$ 2.5	$+ 0.1	+ 4.2
Medical Scientist Training Program	7.9	7.2	− 0.7	− 8.9
Armed Forces health professions	48.8	51.2	+ 2.4	+ 4.9
National Health Service Corps	23.5	9.1	−14.4	−61.3
Total scholarships	82.6	70.0	−12.6	−15.3
Loans				
Health professions student loans	22.9	22.0	− 0.9	− 3.9
Guaranteed student loans	183.2	195.8	+12.6	+ 6.9
National direct student loans	14.9	18.2	+ 3.3	+22.1
Health education assistance loans	50.4	78.8	+28.4	+56.3
Parental loans for undergraduate students	11.3	18.0	+ 6.7	+59.3
Total loans	282.7	332.8	+50.1	+17.7
College Work Study Program	1.4	2.7	+ 1.3	+92.9
Grand total	366.7	405.5	+38.8	+10.6

of the schools to assist their students to fund their educational programs.

In 1983–84, 68.8 percent of the medical students received financial aid compared with 67.0 percent the previous year. The number of students who applied for need-based aid rose 3,519, or 12.0 percent, from 29,239 to 32,758; and the amount of financial need determined by the schools for those students was $355.9 million compared with $293.0 million the previous year, an increase of 21.5 percent. The portion of the calculated need that was not funded by any source of financial assistance was $32.9 million, up $5.5 million, or 20.1 percent, from the previous year.

The mean educational debts of senior students reported on the questionnaire rose 12.4 percent from $23,914 to $26,883, compared with an 18.9 percent growth in 1982–83 from $20,116 in 1981–82. These figures are supported by data provided on the annual AAMC graduation questionnaire by seniors graduating in 1984, which indicated that debts for indebted seniors went up 11.9 percent from $23,674 to $26,496. The number of students reported to have educational debts of $30,000 or more on the LCME annual questionnaire increased 49.9 percent from 2,172 to 3,255, or 35.5 percent of the graduating class members who reported debt.

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